

REMARKS/ARGUMENTS

Claims 2, 4, and 6-24 have been previously canceled. 1, 3, and 5 are pending in the application. Claims 1, 3, and 5 have been rejected. Claims 1, 3, and 5 have been canceled without prejudice to being resubmitted in a continuation application. New claims 25-44 have been added and no new matter has been added

Information Disclosure Statement

The Examiner did not fully consider the information disclosure statement ("IDS") filed on March 15, 2002 stating that the Non-Patent Literature ("NPL") Documents cited in the IDS are not present in the application file. The applicant believes that copies of these references were provided and encloses a copy of the postcard which indicates that 137 references were filed with the IDS. A review of the file history on the PAIR website indicates that the NPL documents were provided. In the interest of expediting prosecution of this matter, however, the applicant is enclosing herewith another set of copies of the NPL documents with a copy of the originally filed PTO-1449 form and respectfully requests that the Examiner consider the NPL documents and make them of record in the case.

Specification

The Examiner has objected to the disclosure stating that the current status of the related U.S. patent application should be provided. The specification has been amended to provide the issued patent number for the related U.S. patent application.

Claim Objections

Claims 1, 3, and 5 have been objected to and correction requested. Claims 1, 3, and 5 have been canceled without prejudice to being resubmitted in a continuation application and the claim objections are therefore now moot.

Claim Rejections – 35 USC § 112

Claim 5 has been rejected under 35 U.S.C. § 112, second paragraph. Claim 5 has been canceled without prejudice to being resubmitted in a continuation application and the claim rejection is therefore now moot.

Claim Rejections – 35 USC § 102

Claim 3 has been rejected under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No. 5,433,708 to Nichols et al. ("Nichols et al"). Claim 3 has been canceled without prejudice to being resubmitted in a continuation application and the claim rejection is therefore now moot. However, the applicant traverses this rejection. Nichols et al. does not teach or suggest a thermal mapping system or method.

Claims 1, 3, and 5 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,176,842 to Tachibana et al. ("Tachibana et al."). Claims 1, 3, and 5 have been canceled without prejudice to being resubmitted in a continuation application and the claim rejections are therefore now moot. However, the applicant traverses this rejection. Tachibana et al. does not teach or suggest a thermal mapping system or method.

Double Patenting

Claim 3 has been rejected under the judicially created doctrine of obviousness-type double patenting over claim 18 of U.S. Patent No. 5,924,997. Claim 3 has been canceled without prejudice to being resubmitted in a continuation application and the claim rejection is therefore now moot.

Claims 1, 3, and 5 have been rejected under the judicially created doctrine of obviousness-type double patenting over claims 1, 3 and 5 of U.S. Patent No. 6,245,026. Claims 1, 3, and 5 have been canceled without prejudice to being resubmitted in a continuation application and the claim rejections are therefore now moot.

New Claims

New claims 25-44 have been submitted and no new matter has been added.

Claims 25-35 recite a system for thermally mapping a vessel wall in the body of a patient which comprises an elongated member suitable for insertion in a vessel of a body of a patient, the elongated member having a proximal and a distal end; an expansion device disposed at or about the distal end of the elongated member; at least one thermal sensor disposed on the expansion device capable of detecting relatively small temperature variations on the vessel wall, the at least one thermal sensor disposed on the expansion device wherein the expansion device is thereby capable of positioning the at least one thermal sensor against the vessel wall; a control circuitry which receives and processes signals from the at least one thermal sensor; and a display coupled to the control circuitry and arranged to receive information from the thermal sensor and to graphically display a thermal map showing temperature variations along a portion of the vessel wall.

Nichols et al. discloses a method and device for thermal ablation having improved heat transfer. Nichols et al. specifically discloses a thermal ablation catheter having a heating coil 40 which delivers heat to an ablation site. Temperature sensors 32 and/or 61 are provided for the purpose of controlling power to the heating coil. Nichols et al. does not disclose or suggest a system for thermally mapping a vessel wall. The temperature sensors of Nichols et al. are not disclosed as being capable of detecting relatively small temperature variations on a vessel wall nor is the system disclosed as being capable of graphically displaying a thermal map showing temperature variations along a portion of a vessel wall.

Tachibana et al. discloses a method and catheter for treating biological tissues with light activated drugs. Tachibana et al. specifically discloses a catheter with an ultrasound transducer 20 to transmit energy to activate the light activated drug. Temperature sensors 22 can be positioned adjacent to the ultrasound transducer 20 to provide feedback regarding the temperature adjacent to the ultrasound transducer 20 in

order to adjust the level of the ultrasound energy delivered from the ultrasound transducer 20 in response to the temperature at the temperature sensors 22. The temperature sensors of Tachibana et al. are not disclosed as being capable of detecting relatively small temperature variations on a vessel wall nor is the system disclosed as being capable of graphically displaying a thermal map showing temperature variations along a portion of a vessel wall.

Claims 36-42 recite a system for thermally mapping a vessel wall in the body of a patient, which comprises an elongated member suitable for insertion in a vessel of a body of a patient, the elongated member having a proximal and a distal end; an expansion device disposed at or about the distal end of the elongated member; at least one thermal sensor capable of detecting relatively small temperature variations on the vessel wall, the at least one thermal sensor disposed on the expansion device wherein the expansion device is thereby capable of positioning the at least one thermal sensor against the vessel wall; an ultrasonic imaging arrangement disposed on or about the distal end of the elongated member; a control circuitry which receives and processes a thermal signal from the at least one thermal sensor and an imaging signal from the ultrasonic imaging arrangement; and a display coupled to the control circuitry and arranged to receive and merge the imaging signal with the thermal signal from the thermal sensor and to graphically display a thermal map showing temperature variations along a portion of the vessel wall.

Neither Nichols et al. nor Tachibana et al. teaches or suggests at least one thermal sensor capable of detecting relatively small temperature variations on the vessel wall or an ultrasonic imaging arrangement. Neither reference teaches or suggests a thermal mapping system arranged to receive and merge an imaging signal and a thermal signal and to graphically display a thermal map showing temperature variations along a portion of the vessel wall.

Claims 43-44 recite a method of thermally mapping a vessel wall in the body of a patient, which comprises inserting an elongated member having at least one thermal

sensor disposed on or about the distal end of the elongated member into a vessel of a body of a patient; altering the effect of blood flow in the region of the at least one thermal sensor; receiving and processing signals from the at least one thermal sensor; and receiving information from the thermal sensor and graphically displaying a thermal map showing temperature variations along a portion of the vessel wall.

Neither Nichols et al. nor Tachibana et al. teaches or suggests a method of thermally mapping a vessel wall wherein the effect of blood flow is altered in the region of a thermal sensor.

In view of the foregoing, it is submitted that claims 25-44 are in condition for immediate allowance, and such action is respectfully requested.

If for any reason direct communication with the Applicant's attorney would serve to advance prosecution of this case to finale, the Examiner is cordially urged to call the undersigned attorney at the below listed telephone number.

Respectfully submitted,



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Dated: July 25, 2005

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